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## **Missouri's Dentists- 2014**

General dentistry is defined as the evaluation, diagnosis, prevention and/or treatment (nonsurgical, surgical or related procedures) of diseases, disorders and/or conditions of the oral cavity, maxillofacial area and/or the adjacent and associated structures and their impact on the human body; provided by a dentist, within the scope of his/her education, training and experience, in accordance with the ethics of the profession and applicable law.<sup>1</sup> In Missouri, a dentist is partially defined as one who diagnoses, prescribes for, or treats any disease, pain, deformity, injury, or physical condition of human teeth or adjacent structures or treats any disease or disorder or lesions of the oral regions.<sup>2</sup>

Dentists receive licensure in Missouri through the Department of Insurance, Financial Institutions, and Professional Registration, Dental Board. Basic demographic information on all dental licensees is available from the Dental Board's publicly reported data.<sup>3</sup> For the purposes of this report, this data is supplemented by mandatory information collected through registrations submitted to the DHSS Bureau of Narcotics and Dangerous Drugs (BNDD) by way of the Missouri Healthcare Workforce Registry and Exchange (MoHWoRx) and by voluntary survey information collected through the Missouri Health Professionals Registry, an information system developed by DHSS to help health professionals meet state registration requirements and to provide comprehensive and timely information on health care access statewide.<sup>4</sup>

This report serves to provide a baseline assessment of Missouri's dental workforce with a specific focus on access to dental services and other related topics. Following closely on the heels of the DHSS report, *Dental Hygiene Workforce Analysis 2014*, this assessment aids in better understanding Missouri's oral health professional workforce.<sup>5</sup> It should be noted that the data in this report from the Dental Board and from BNDD were obtained on April 2, 2014 and are current as of that date. Additionally, due to the use of two dynamic data sets, discrepancies in total numbers may occur.

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<sup>1</sup> American Dental Association. *General Dentistry*. Accessed May 16, 2014 at <http://www.ada.org/en/education-careers/careers-in-dentistry/general-dentistry>.

<sup>2</sup> Missouri Revised Statutes, Chapter 332, Dentists.

<sup>3</sup> Missouri Division of Professional Registration, Dental Board, Downloadable Listings, Accessed April 2, 2014 at <http://pr.mo.gov/listings-den.asp>.

<sup>4</sup> Missouri Department of Health and Senior Services, Missouri Healthcare Workforce Registry and Exchange, <http://health.mo.gov/professionals/index.php>.

<sup>5</sup> Missouri Department of Health and Senior Services, Publications, *Dental Hygiene Workforce Analysis 2014*. Available at <http://health.mo.gov/living/families/primarycare/publications.php>

## Total Dentists

Missouri currently licenses 4,000 dentists. The absolute number of licensees shows a substantial downward trend since State Fiscal Year (SFY) 1992, with a low of 3,621 licensees in SFY 2002, and a high of 4,340 licenses in SFY 1992 (Figure 1).<sup>6,7</sup>

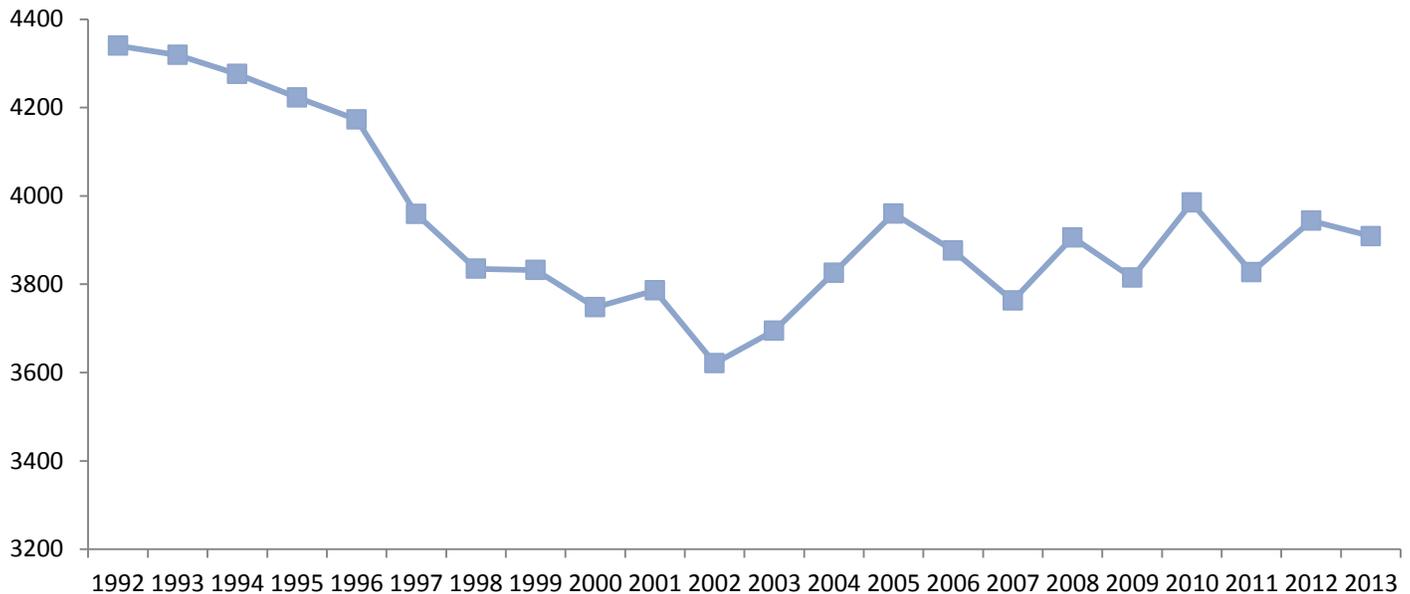


Figure 1. Total Dental Licensees by State Fiscal Year

## Dentists in Missouri

Of the 4,000 current dental licensees, 3,274 (81.9%) list a primary practice or contact address in Missouri (Figure 2). Overall, Missouri has a population-to-dentist ratio of 1,846:1, which suggests an adequate supply of dentists exists in Missouri when viewed from a statewide perspective.<sup>8,9</sup> However, as shown in Figures 3 and 4, the distribution of dentists listing a primary practice or contact address in Missouri varies widely. In areas classified as urban, there are 2,523 dentists (population to dentist ratio of 1,503:1) while in areas of Missouri classified as rural there are 751 dentists (population to dentist ratio of 2,969:1).<sup>10</sup> It should be particularly noted that five counties (Mercer, Ralls, Shannon, Wayne, and Worth) have no dentist listing a contact address or primary practice location within its borders. This type of “geographic maldistribution” is known to have significant effects on access to oral health services.<sup>9</sup>

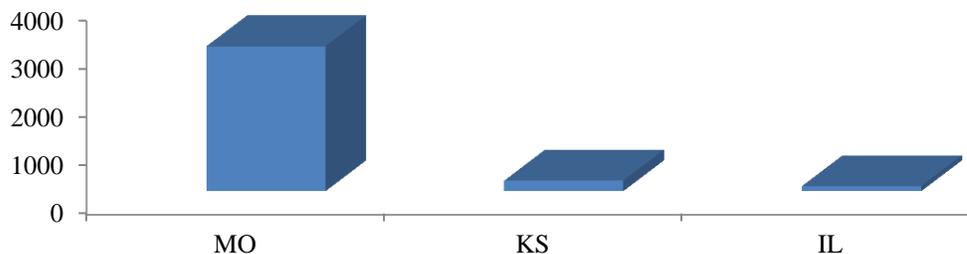


Figure 2. Dental Licensees by State

<sup>6</sup> Brian Barnett, Missouri Dental Board, personal communication, January 30, 2014.

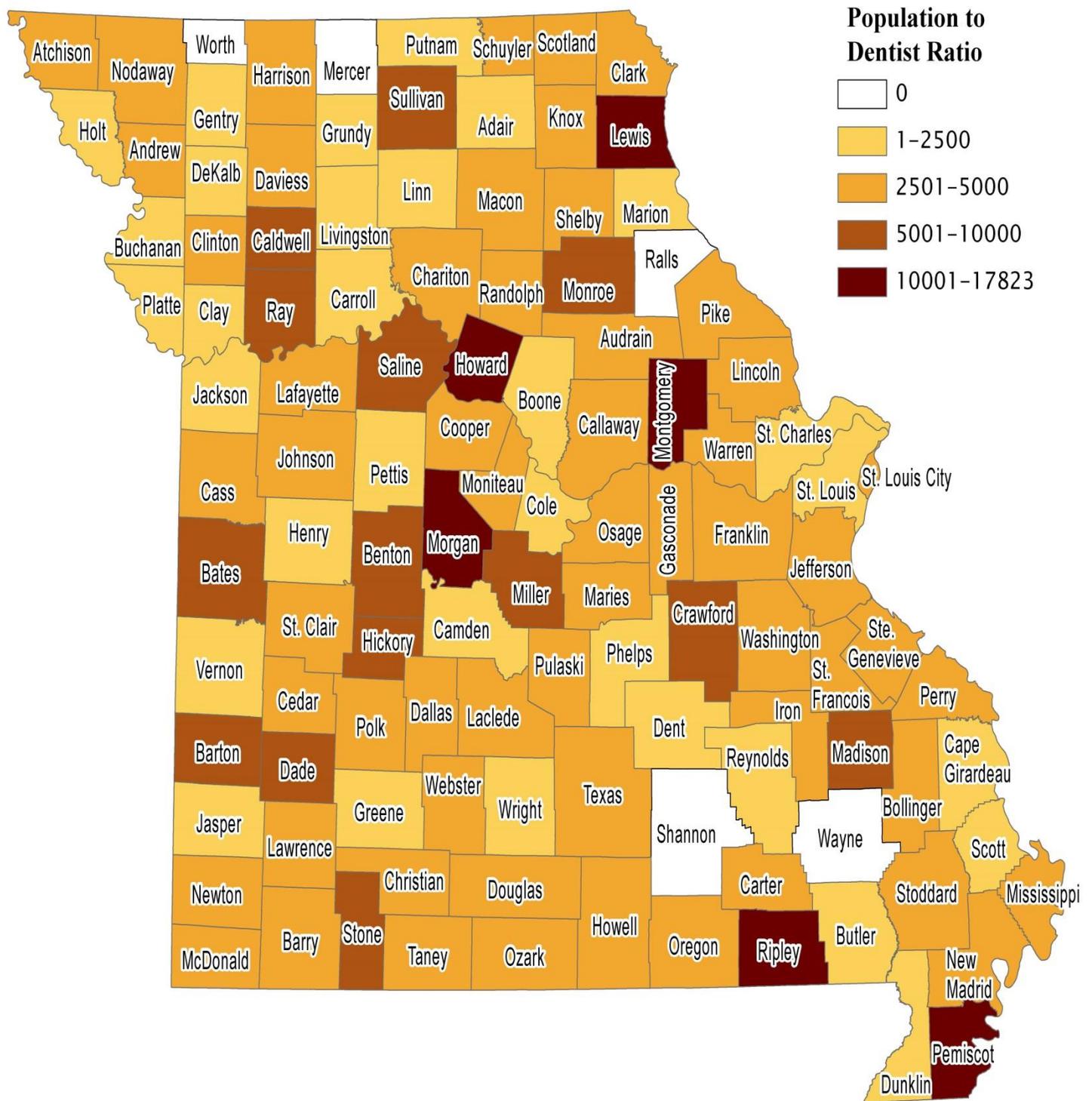
<sup>7</sup> Smith, J. *State of Missouri, Division of Professional Registration, Dental Board Licensee Statistical Data 1997 to 2007*. June 2007.

<sup>8</sup> U.S. Census Bureau, *State and County Quick Facts*. Missouri population totals. Accessed May 19, 2014 at <http://quickfacts.census.gov/qfd/index.html>

<sup>9</sup> IOM (Institute of Medicine) and NRC (National Research Council). 2011. *Improving Access to Oral Health Care for Vulnerable and Underserved Populations*. Washington, DC: The National Academies Press.

<sup>10</sup> Missouri Department of Health and Senior Services, *Health in Rural Missouri. Defining Rural Missouri*. Accessed May 19, 2014 at <http://health.mo.gov/living/families/ruralhealth/pdf/biennial2013.pdf>.





**Figure 4.** Population to Dentist Ratio

While the overall state population to dentist ratio is 1,846:1, the average county ratio is 3,748:1. In those counties with a dentist, the lowest ratio is in Marion county (563:1), while the highest ratio is in Pemiscot county (17,823:1). As shown in Figure 4 there is wide variation in individual county population to dentist ratios.

It is critical to remember that a general ratio does not take into account a variety of factors: dentist productivity and hours worked, number of dental hygienists and/or dental assistants in a given practice, and the overall oral health status and needs of the population, just to name a few. But, it does provide a baseline understanding of where one could assume greater access to dental services and potentially better overall oral health.

## Dental Specialties

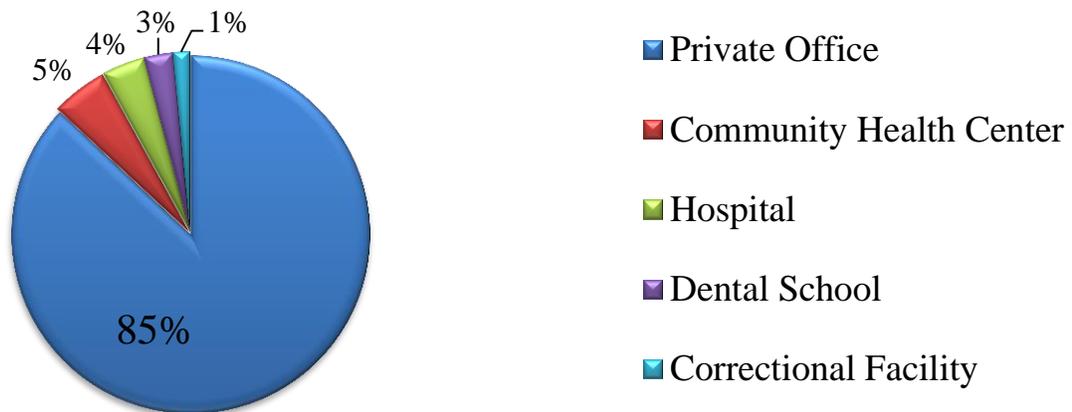
The Missouri Dental Board currently recognizes the following dental specialties: Endodontics, Oral and Maxillofacial Pathology, Oral and Maxillofacial Surgery (Oral Surgery), Orthodontics and Dentofacial Orthopedics, Pediatric Dentistry (Pedodontics), Periodontics, Prosthodontics, Public Health, and Oral and Maxillofacial Radiology.<sup>11</sup> Of the 3,274 Missouri located dentists 511 are dental specialists (Table 1). The most common dental specialty is “Orthodontics” (183).

| Specialty         | Total        | Percent of Total Dentists |
|-------------------|--------------|---------------------------|
| General Dentistry | 2,763        | 84.4%                     |
| Orthodontics      | 183          | 5.6%                      |
| Oral Surgery      | 112          | 3.4%                      |
| Pedodontics       | 71           | 2.2%                      |
| Endodontics       | 60           | 1.8%                      |
| Periodontics      | 59           | 1.8%                      |
| Prosthodontics    | 22           | <1.0%                     |
| Oral Pathology    | 3            | <1.0%                     |
| Oral Radiology    | 1            | <1.0%                     |
| <b>Total</b>      | <b>3,274</b> | <b>100%*</b>              |

**Table 1.** Dental Specialties \*Numbers do not add up to exactly 100% due to rounding.

## Practice Setting

When registering with the BNDD, dentists may select a practice setting for their primary practice location. The top 5 responses can be seen in Figure 5. Of the 2,870 responses from Missouri located dentists, the overwhelming majority, 2,442 (85.1%), selected “Private Office” as their practice setting.



**Figure 5.** Practice Setting

<sup>11</sup> Missouri Division of Professional Registration, Dental Board, General Rules. Accessed April 2, 2014 at <http://www.sos.mo.gov/adrules/csr/current/20csr/20c2110-2.pdf>

## **Schools of Dentistry**

### *University of Missouri- Kansas City (UMKC) School of Dentistry*

The UMKC School of Dentistry is the oldest dental school in Missouri, having originally started in 1881 as the Kansas City Dental College.<sup>12</sup> Currently the only public dental school in Missouri and until recently the only dental school in Missouri, the school has had a significant impact on the supply of dentists in the state as suggested by the school in stating that “two-thirds of dentists in Missouri received their Doctor of Dental Surgery from the UMKC School of Dentistry.”<sup>12</sup>

As reported by UMKC, the school has averaged 96 graduates per year over the last 10 years. Of those graduates, on average 63 have been Missouri residents. According to a survey conducted by UMKC on graduating seniors, an average of 56.2% of respondents indicate going into clinical dental practice in Missouri immediately following graduation.<sup>13</sup> This suggests that approximately 54 new dentists from the school are going into clinical practice in Missouri each year.

### *Missouri School of Dentistry & Oral Health*

In 2013 the Missouri School of Dentistry & Oral Health (MOSDOH), located in Kirksville, admitted its inaugural class of 42 students.<sup>14</sup> While it is yet to be known what effect the school will have on Missouri’s total number of licensed dentists, it does provide a promising opportunity for the state to offset the overall loss in total dentists since 1992.<sup>7</sup> In a school with a similar model, at least 32% of graduates from each of the first 3 classes of the Arizona School of Dentistry and Oral Health went on to practice in community-based/public health settings.<sup>15</sup> Additionally, the school has a stated goal of increasing access to oral health services for Missouri’s underserved populations making the potential long-term effects of MOSDOH on the supply of dentists promising; it can at least be conjectured that future graduates of the school will likely enter into service within a public health setting and that graduates will have a strong understanding of community based dentistry.<sup>16</sup>

## **Access to Dental Services**

Access to general dentists in Missouri is uneven at best as the distribution of dentists often is mismatched with patient needs. Particularly, patients in rural areas or low-income patients, including the uninsured and those on Medicaid, may have greater problems accessing dental services. A standardized way to view access to dental services is Dental Health Professional Shortage Area (DHPSA) designations from the Health Resources and Services Administration. These designations primarily indicate a general shortage of dentists in a given geographic area or population group in terms of a population to dentist ratio.

Based on data from the Health Resources and Services Administration (HRSA) Data Warehouse, as of July 2014 there are 99 counties with a DHPSA in Missouri (Figure 6).<sup>17</sup> Within Missouri’s DHPSAs there are 1,528,592 Missourians (roughly 26% of the total population). Based on the population to dentist ratio in these DHPSAs, a total of 286 dentists are needed to meet the needs of these residents and remove the DHPSA designations. Of those individuals residing within DHPSAs it is estimated that only 24.5% are currently having their needs met in regards to oral health services. This suggests that approximately 1,154,087 Missourians cannot routinely access dental services.<sup>17</sup>

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<sup>12</sup> University of Missouri Kansas City, *About the School, Overview*. Accessed August 28, 2014 at [http://dentistry.umkc.edu/about\\_school/overview.shtml](http://dentistry.umkc.edu/about_school/overview.shtml)

<sup>13</sup> Richard Bigham, University of Missouri- Kansas City, personal communication, July 10, 2014.

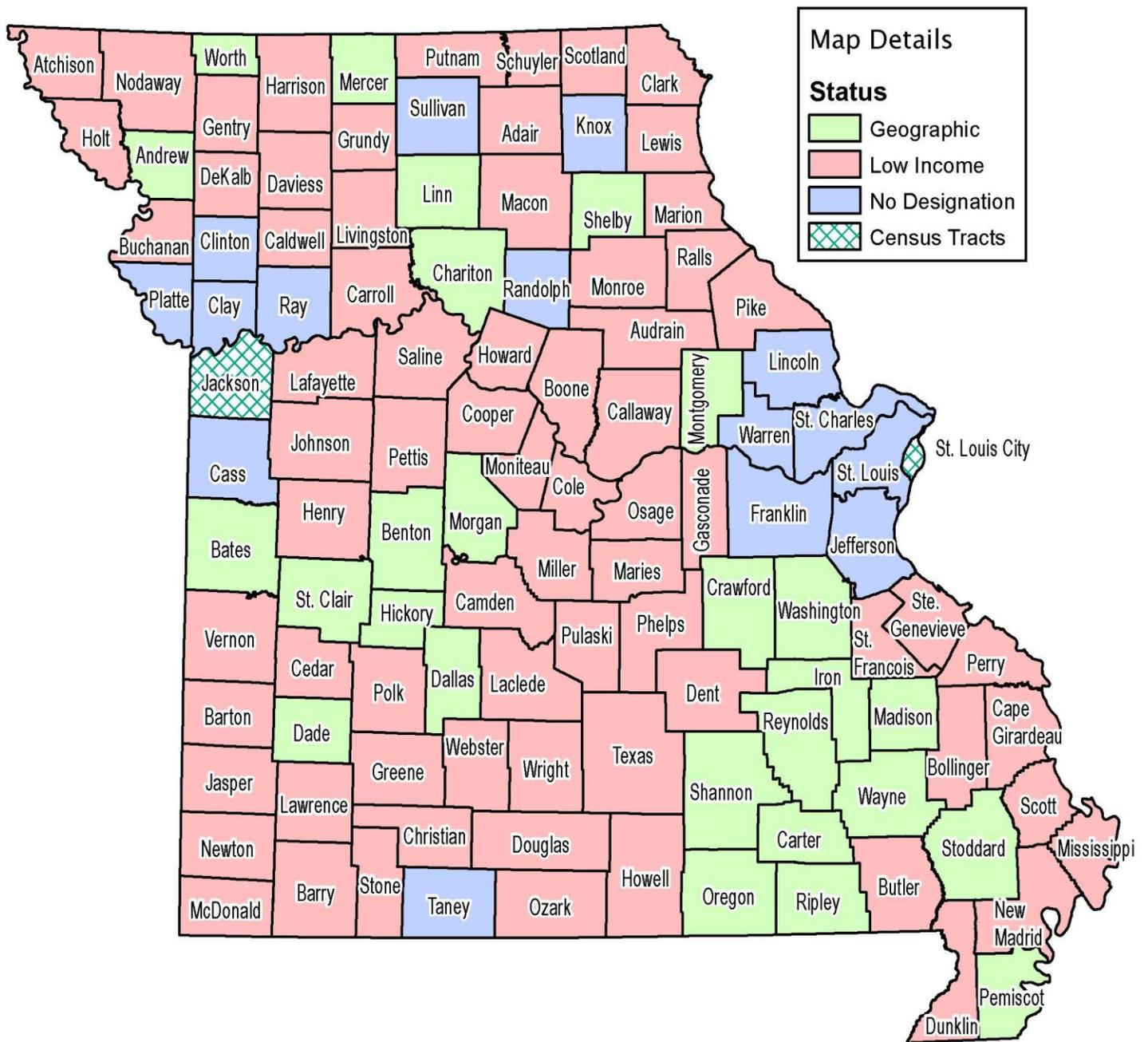
<sup>14</sup> A.T. Still University, *Missouri School of Dentistry & Oral Health Facts*. Accessed June 19, 2014 at <http://www.atsu.edu/mosdoh/about/fastfacts.html>.

<sup>15</sup> Smith, Kneka P., Woldt, Janet L., Cottam, Wayne W., Cederberg, Robert A. The Arizona Model: A New Paradigm for Dental Schools. *Journal of Dental Education*, 75:1 p 3-12.

<sup>16</sup> Altman, Donald S., et al. Perceived Influence of Community Oral Health Curriculum on Graduates’ Dental Practice Choice and Volunteerism. *Journal of Dental Education*, 77:1 p 37-42.

<sup>17</sup> Health Resources and Services Administration, Data Warehouse, *Designated Health Professional Shortage Area Statistics*. Accessed July 3, 2014 at

[http://ersrs.hrsa.gov/ReportServer/Pages/ReportViewer.aspx?/HGDW\\_Reports/BCD\\_HPSA/BCD\\_HPSA\\_SCR50\\_Smry\\_HTML](http://ersrs.hrsa.gov/ReportServer/Pages/ReportViewer.aspx?/HGDW_Reports/BCD_HPSA/BCD_HPSA_SCR50_Smry_HTML).



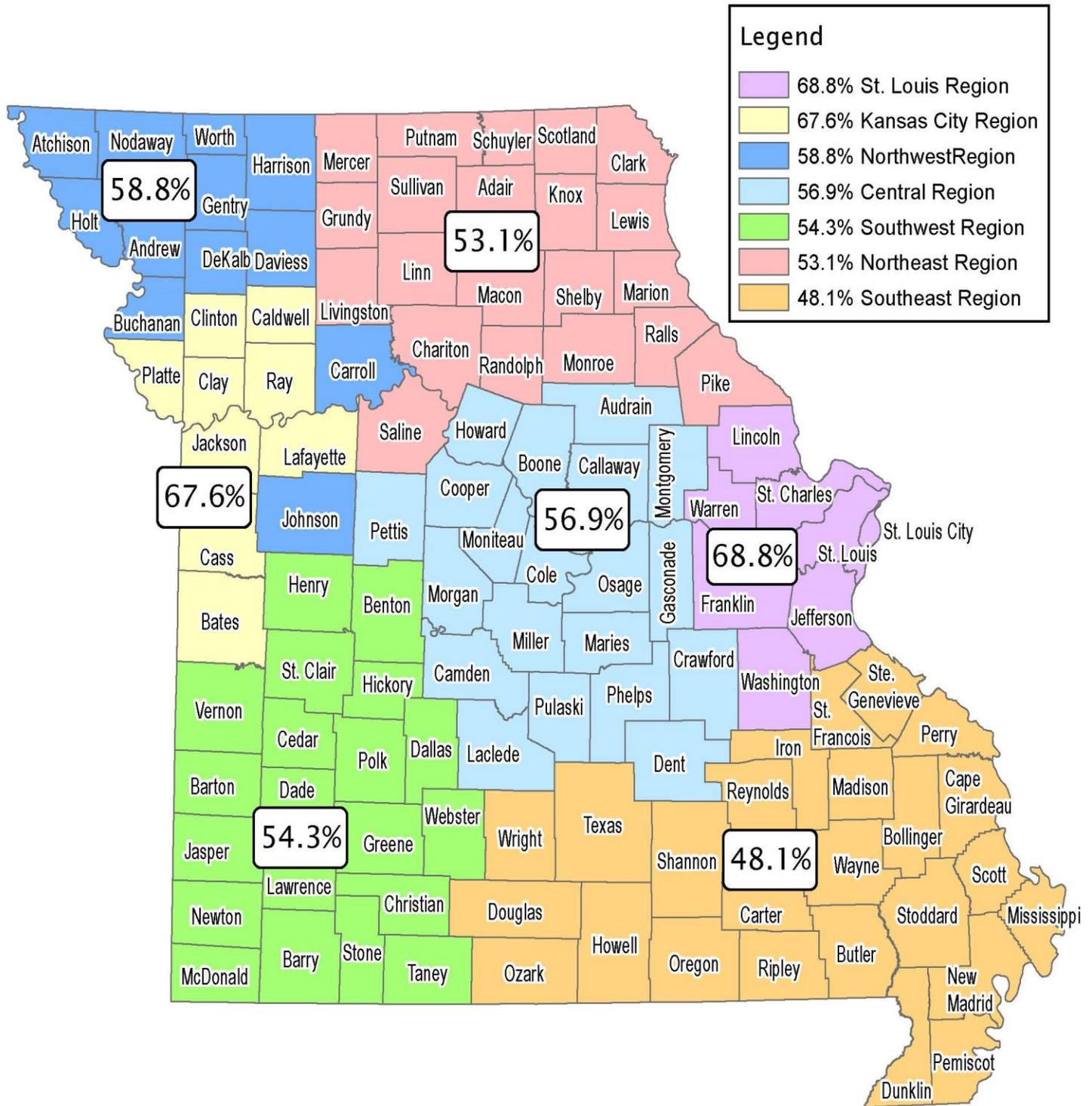
**Figure 6.** Dental Health Professional Shortage Areas

Comparing Missouri to the rest of the United States shows that Missouri is 3<sup>rd</sup> in the order of states with the most geographic and population-based DHPSAs and is 10<sup>th</sup> in terms of percentage of total population residing in a DHPSA.<sup>17</sup> Missouri is also the 4<sup>th</sup> lowest state in terms of percentage of the population in DHPSAs with met needs in regards to oral health services. These indicators signify that Missouri is severely behind other states in regards to access to dental services.

The effects of limited access to care can be seen when looking at the number of Missouri adults who report visiting a dentist in the last year. According to the 2012 Missouri Behavioral Risk Factor Surveillance System (BRFSS), 61.8% of Missouri adults visited a dentist in the last year which is less than the national median of 67.2%.<sup>18</sup>

Two particularly telling points in the BRFSS data need to be further elucidated. First, when the data is examined by reported annual income, 79.7% of adults with annual incomes greater than \$50,000 reported

visiting a dentist, which is over twice the rate of 37.2% reported by adults with annual incomes less than \$15,000.<sup>18</sup> Second, when the data is examined by region, a clear relationship is seen between DHPSA designations and reported rates of visiting a dentist. For example, in the Southeast BRFSS region, the area with the most severe geographic DHPSAs, only 48.1% of adults reported visiting a dentist; that rate is over 20% less than the highest reported rate (68.8%) in the St. Louis region, the area with the least DHPSAs (Figure 7).



**Figure 7.** Percentage of Adults Reporting a Visit to the Dentist in the Last Year

<sup>18</sup> Kelsey, A. *Oral Health in Missouri 2014- A Burden Report by the Missouri Department of Health and Senior Services*. Accessed August 29, 2014 at <http://health.mo.gov/living/families/oralhealth/pdf/2014OralHealthReport.pdf>



## **Medicaid**

Eligibility for dental benefits under MO HealthNet is primarily for those under 21 years of age, with a few exceptions for special populations. According to the Medical Statistical Information System used by MO HealthNet, during SFY 2013 there were 650,138 children enrolled in Medicaid for at least one month of the year. Also during SFY 2013, there were 477 billing dentists with at least one paid claim; about 300 of these had paid claims of at least \$10,000 and/or saw 100 or more beneficiaries under the age of 21.<sup>18</sup>

Of those individuals with Medicaid coverage for dental services, MO HealthNet reports that 39.5% of fee-for-service beneficiaries received preventive dental services in State Fiscal Year 2012 and 46.4% of managed care beneficiaries received preventive dental services. Treatment service utilization rates were 20.1% and 21.9% respectively for fee-for-service beneficiaries and managed care beneficiaries.<sup>18</sup>

## **Discussion**

This report on Missouri's dentists provides a unique perspective of the profession at a macro-level with a specific focus on access to dental services and other related areas. While the report provides more of a general focus, some interesting points emerge.

Overall, the number of dental licensees shows a marked decrease over the last 20 years. While assuming this decrease has led to an overall decrease in services is not without question, due to considerations of productivity and technological advancement,<sup>23</sup> it does present a trend that is worth further consideration.

The vast majority of dentists practice general dentistry in the private practice setting, although there has been a significant change in the percent of total dental licensees who practice as dental specialists. From 2006 to 2014, 17% of the total Missouri dental licensees were dental specialists, compared to 14% of the total licensees between 1992 and 1994. In 1992 there were 3,751 general dentistry (non-specialist) licensees while in 2013 there were 3,251 general dentistry licensees, a decrease of over 13% (500 total). This decrease is higher than the general decrease total dental licensees (10% or 431 total). Taken together with the overall loss of total dental licensees, this shift has a significant compounding effect on the availability of general dental services.

Access to dental services is a problem in Missouri, both quantitatively and qualitatively.<sup>24</sup> Missouri is the state with the 3<sup>rd</sup> highest number of designated Dental Health Professional Shortage Areas (DHPSAs) and over 1.5 million Missourians reside in these areas. Of those 1.5 million, over 1.1 million cannot routinely access dental services. The effects of this are evident, as far fewer adult residents in areas of the state with the most DHPSAs, particularly geographically defined DHPSAs, report visiting a dentist in the last year; in the most extreme instance less than half of all adults in the Southeast region report visiting a dentist in the last year.

Finally, it is evident that there are significant trends and influences in the practice of dentistry in Missouri that need to be assessed and more fully understood, such as the influence of the expansion of the dental hygiene workforce, the dental assisting workforce, and oral health literacy.<sup>5,9</sup> From the perspective of population health, significant efforts need to be made in the accessibility of dental services, such as leveraging non-dental professionals, optimizing the use of existing professionals, and enhancing the delivery of oral health services through public and private insurances. Ultimately, it must be understood that the issues faced by Missouri are not confined to one population group or to one socioeconomic class; they affect all of us, directly and indirectly.

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<sup>23</sup> Beazoglou, T., Bailit, H., Myne, V., Roth, K. *Supply and Demand for Dental Services: Wisconsin 2010-2020*. January 2010. Accessed June 30, 2014 at [http://www.wda.org/wp-content/uploads/2012/04/Supply-and-Demand\\_Final-Report.pdf](http://www.wda.org/wp-content/uploads/2012/04/Supply-and-Demand_Final-Report.pdf).

<sup>24</sup> Frosh, W. *Missouri's Oral Health: Understanding and Overcoming Barriers to Oral Health Access*. June, 2012.